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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/584,266

06/23/2006

Masato Iwanaga

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08/27/2008

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EXAMINER

RADEMAKER, CLAIRE L

ART UNIT

PAPER NUMBER

1795

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/584,266	Applicant(s) IWANAGA ET AL.	
	Examiner CLAIRE L. RADEMAKER	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 6/23/06, 12/23/06.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/23/06, 12/23/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1, 3, & 5 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-6 & 9 of copending Application No. 10/567,902. Although the conflicting claims are not identical, they are not patentably distinct from each other because both Applications claims a nonaqueous electrolyte secondary battery comprising a positive electrode capable of permitting reversible insertion and desorption of lithium, a negative electrode comprising a carbonaceous material capable of permitting reversible insertion and desorption of lithium, and a nonaqueous electrolytic solution comprising 0.1-2.0wt% of a dialkyl oxalate containing 8 carbons and 0.1-3.0wt% vinylene carbonate, both based on the

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weight of said nonaqueous electrolytic solution, wherein said nonaqueous electrolytic solution further comprises cyclic carbonate ethylene carbonate and a linear carbonate methyl ethyl carbonate.

While copending Application No. 10/567,902 does not specifically claim that the battery comprises a separator separating the positive and negative electrodes from each other, one of ordinary skill in the art would understand that it is inherent that the battery must comprise a separator inbetween said positive and negative electrodes in order for the battery to function properly.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Information Disclosure Statement

3. The information disclosure statement filed June 23, 2006 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. Specifically copies of DE 69511321T and CN 1119350 have not been received, but these references have been placed in the application file and the information referred to therein has been considered.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The statement "is deployed inside a metallic case whose thickness is 0.15 to 0.50 mm" (claim 7, lines 2-3) is indefinite because it is unclear whether the thickness refers to the overall thickness of the case or the thickness of the metal piece(s) used to make the case. For examination purposes, this statement was interpreted as meaning the thickness of the metal piece(s) used to make the case.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hamamoto et al. (JP 2002-124297) in view of Noh (US 2004/0101762).

With regard to claim 1, Hamamoto et al. teaches a nonaqueous electrolyte secondary battery (paragraphs [0001]-[0002]) comprising a negative electrode constituted of a carbonaceous material (paragraphs [0002], [0011], & [0025]) permitting reversible insertion and desorption of lithium, a positive electrode comprising a lithium metal oxide, such as LiCoO_2 , LiMn_2O_4 , or/and LiNiO_2 (paragraphs [0002] & [0023])

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permitting reversible insertion and desorption of lithium, a separator (paragraphs [0026] & [0028]), and a nonaqueous electrolyte (paragraphs [0017]-[0020]) composed of an organic solvent (paragraphs [0017]-[0019]) with a solute of lithium salt dissolved therein (paragraphs [0020]-[0021]), wherein said nonaqueous electrolyte can contain 0.1-10wt% of di(2-propynyl oxalate) by mass relative to the mass of said nonaqueous electrolyte (paragraphs [0016]-[0017]), and vinylene carbonate (VC), dimethyl carbonate (DMC), diethyl carbonate (DEC), methyl ethyl carbonate (MEC) / ethyl methyl carbonate (EMC), and/or ethylene carbonate (EC) (paragraphs [0018]-[0019]), but fails to specifically state the amount of vinylene carbonate used.

Noh teaches the concept of a nonaqueous electrolyte containing 0.1-50wt% of vinylene carbonate by mass relative to the mass of said nonaqueous electrolyte (paragraphs [0030] & [0039]) in addition to DMC, DEC, MEC/EMC, and/or EC (paragraph [0026]) and a lithium salt (paragraphs [0030]-[0031]) in order to inhibit swelling at high temperature and to improve cycle life characteristics of the battery (paragraph [00020]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the concept of adding 0.1-50wt% of vinylene carbonate of Noh to the nonaqueous electrolyte of Hamamoto et al. in order to inhibit swelling at high temperature and to improve cycle life characteristics of the battery (paragraph [00020]).

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8. Claims 2-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamamoto et al. (JP 2002-124297) and Noh (US 2004/0101762), as applied to claim 1 above, and further in view of Kanekiyo et al. (JP 2002-313419).

The disclosure of Hamamoto et al. and Noh as discussed above is fully incorporated herein.

With regard to claims 2-6, Hamamoto et al. teaches that the negative electrode active material can be a carbonaceous material (paragraphs [0002], [0011], & [0025]) and that the nonaqueous electrolyte can comprise DMC, DEC, MEC/EMC, and/or EC (paragraphs [0018]-[0019]), but fails to teach the packing density of said negative electrode active material or to specifically state the amount of DEC, and EC used.

Kanekiyo et al. teaches the concept of a carbonaceous negative electrode active material (graphite carbon) having a bulk density of 1.34g/mL (paragraphs [0010] & [0027]) and a nonaqueous electrolyte can comprise 25-40vol% EC, 25-60vol% MEC/EMC, and 10-40vol% DEC (paragraphs [0006], [0011]-[0012], [0029]) in order to increase battery capacity and optimize the ionic conductivity / electric property of said nonaqueous electrolyte (paragraph [0012]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the concept of a negative electrode active material having a packing density of 1.34g/mL of Kanekiyo et al. to the battery of modified Hamamoto et al. in order to increase battery capacity (paragraph [0010]). Furthermore, it would have been

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obvious to one of ordinary skill in the art at the time of the invention to add the concept of a nonaqueous electrolyte containing 25-40vol% EC, 25-60vol% MEC/EMC, and 10-40vol% DEC of Kanekiyo et al. to the nonaqueous electrolyte of modified Hamamoto et al. in order to optimize the ionic conductivity / electric property of said nonaqueous electrolyte (paragraph [0012]).

9. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hamamoto et al. (JP 2002-124297) and Noh (US 2004/0101762), as applied to claim 1 above, and further in view of Kinoshita et al. (US 2004/0091780).

The disclosure of Hamamoto et al. and Noh as discussed above is fully incorporated herein.

With regard to claim 7, modified Hamamoto et al. fails to teach a metallic case with the specified thickness.

Kinoshita et al. teaches the concept of deploying a nonaqueous secondary battery inside a metallic case, wherein said metallic case can be made from an aluminum alloy sheet having the thickness of 0.5mm or less (paragraph [0034] & claim 2) in order to provide an airtight environment for said nonaqueous electrolyte battery (abstract) and thereby prevent said electrodes and said electrolyte from being exposed to contaminants.

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the metallic case having a thickness of 0.5mm or less of Kinoshita et al. to the nonaqueous secondary battery of modified Hamamoto et al. in order to provide an airtight environment for said nonaqueous electrolyte battery (abstract) and thereby prevent said electrodes and said electrolyte from being exposed contaminants.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sekino et al. discloses a nonaqueous electrolyte secondary battery comprising an aluminum where said aluminum can was made from an aluminum sheet having a thickness of 300mm; Kondo et al. (US 2002/0081494) discloses a battery comprising a 0.3mm thick iron can; Nirasawa et al. discloses a nonaqueous electrolyte secondary battery comprising a graphite anode having a packing density of 0.4g.mL, a cathode comprising lithium-based metal oxide(s) (Co, Ni, Mn, Ti, and/or Al), a separator provided between said anode and said cathode, a nonaqueous electrolyte, and an iron battery case plated with nickel; Kato et al. (US 2004/0248010) discloses a cathode comprising LiCoO_2 , an anode comprising a carbonaceous material (graphite), a separator interposed between said anode and said cathode, a nonaqueous electrode comprising EC, MEC/EMC, DEC in a volume ratio of 1:2:1, and 1wt% of VC; Mayer (US 6,379,842) discloses a battery comprising a nonaqueous electrolyte comprising 38vol% EC, 14vol % DEC, and 31vol% DMC, and a balance of LiPF_6 salt; Inoue et al. (US

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2003/0180618) discloses a adding 3wt% VC to a nonaqueous electrolyte secondary battery in order to prolong battery life.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CLAIRE L. RADEMAKER whose telephone number is (571)272-9809. The examiner can normally be reached on Monday - Friday, 8:00AM - 4:30PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on 571-272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/C. L. R./
Examiner, Art Unit 1795

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/Cynthia H Kelly/

Supervisory Patent Examiner, Art Unit 1795